

REMARKS

Allowable Subject Matter

Claims 10-13, and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants appreciate the Examiner's designation of allowable subject matter but believe that all the claims 1-28 are allowable for the reasons given below.

Claim Rejections - 35 USC §103

Claims 1-9, 14-16, and 20-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Jouppi (U.S. Appl. Pub. No. 2002/0141595 A1, hereinafter "Jouppi") and Amir et al. (U.S. Appl. Pub. No. 2002/0090094 A1, hereinafter "Amir").

Re claim 1, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

"...audio signals from the first location to a second location of a person;
...plural means for reproducing an audio field at the second location from the audio signals, wherein sounds emitted by each means for reproducing are controlled based on the position of the head of the person."
[deletions for clarity]

The Examiner states in the Office Action of June 1, 2007 (hereinafter the "Office Action"):

"Re claim 1, Jouppi disclose...plural means for reproducing audio field at the second location from the audio signals ("page 2[0030] & page 3[0036]")....

However, Amir et al. disclose of [sic] a system wherein the means for determining a position of the head of the person...for the purpose of adjusting the gain of the transducer based on the head movement...

The combined teaching of Jouppi and Amir et al. as a whole, further teach [sic] of the sounds emitted by each means for reproducing are controlled based on the position of the head of the person ("fig.1 ((14,18,24,26); fig.4; page 3[0027] line 16-20")." [deletions for clarity]

Applicants respectfully disagree because Jouppi and Amir, taken as a whole, do not teach or suggest reproducing an audio field at a second location from audio signals from a first location. Applicants teach controlling the reproduction of the speaker sound heard at a person's head. Neither Jouppi nor Amir teaches or suggests controlling speakers. Jouppi has no control over the speakers, and Amir controls microphones picking up sound coming from a person's head. This is taught in Amir FIGs. 1 and 4, and Amir para. [0014], [0018], [0024], [0026], and [0027], and most specifically in Amir para. [0027], lines 16-20, which states:

“[0027] ... These techniques can be implemented by the processor 12 to derive a person-microphone position signal based on a video stream from a video-based detector 18.” [deletion and underlining for clarity]

Based on the above, it is respectfully submitted that claim 1 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because:

“[T]he prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.” [Bold for clarity] *In re Vaeck*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

Re claim 2, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“the audio field is reproduced in real time.”

The Examiner states in the Office Action:

“Re claim 2, the system according to claim 1, wherein the audio field is reproduced in real time ("Amir, page 3[0029]").”

Applicants respectfully disagree because a microphone does not reproduce an audio field and it is clear from Amir para. [0029], that Amir is teaching a microphone pickup:

“[0029] At block 40, a gain adjust signal can be determined based on the person-microphone position signal. ...” [underlining and deletion for clarity]

Based on the above, it is respectfully submitted that claim 2 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck*, *supra*.

Re claim 3, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“said means for reproducing is continuously controlled in response to changes in the position of the head of the person.”

The Examiner states in the Office Action:

“Re claim 3, the system according to claim 1,...said means for reproducing is continuously controlled in response to changes in the position of the head of the person ("abstract, page 1[0007] line 15-18/precise adjustment based on speaker movement denote continuity and repetitiveness").” [deletion for clarity]

Applicants respectfully disagree because it is clear that the means for reproducing is a speaker and it is clear from the Amir Abstract and the Amir para. [0007], that Amir is teaching a microphone picking up sounds:

“[0007] Accordingly, the present invention recognizes that it would be desirable to automatically adjust the gain of an audio system in synchronization with the head movements of a speaking person relative to a microphone. ...” [underlining for clarity]

Based on the above, it is respectfully submitted that claim 2 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck, supra*.

Re claim 4, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“said means for reproducing is continuously controlled in response to changes in the position of the head of the person.”

The Examiner states in the Office Action:

“Re claim 4, the system according to claim 1, wherein the position of the head of the person is determined in horizontal directions and wherein volume for reproduction by each means for reproducing is controlled based on the horizontal distance between the head of the person and the means for reproducing ("Amir,fig.1(18,28)").”

Applicants respectfully disagree because Amir is not teaching a means for reproducing sound as claimed and it is clear from Amir FIG. 1 and Amir paras. [0018] and [0028], and more specifically para. [0028], that Amir is teaching picking up sound at a microphone:

“[0028] In one embodiment, the person-microphone position signal can depend on the sine of the angle between the person 32 and the microphone 28, relative to the straight ahead position of the head of the person 32, as derived from a video signal. For disclosure purposes, when a person is directly facing the microphone 28, the angle between the person and microphone is zero; when a person is facing broadside to the microphone, the angle is 90°.”
[underlining for clarity]

Based on the above, it is respectfully submitted that claim 3 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck, supra*.

Re claims 5-8, these dependent claims respectively depend from independent claim 1 and are believed to be allowable since they contain all the limitations set forth in the independent claim from which they depend and claim additional unobvious combinations thereof.

Re claim 9, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“the volume of reproduction by each of a pair of vertically arranged speakers is based on the position of the head of the person in the vertical direction.”

The Examiner states in the Office Action:

“Re claim 9, the combined teaching of Jouppi and Amir et al. as a whole would have incorporate, further teach of the system according to claim 8, wherein the volume of reproduction by each of a pair of vertically arranged speakers is based on the position of the head of the person in the vertical direction (“Amir,fig.1-4(46,54)/video to incorporate multi-dimensional head movement”).”

Applicants respectfully disagree because neither Jouppi nor Amir teaches or suggests in "Amir, fig.1-4(46,54)/video to incorporate multi-dimensional head movement" that the volume of reproduction by speakers is based on the position of the head of the person.

Based on the above, it is respectfully submitted that claim 9 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck, supra*.

Re claim 14, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“wherein the particular one of the audio signals is multiplied by a factor related to the position to determine a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level.”

The Examiner states in the Office Action:

“Re claim 14, the system according to claim 1, wherein the particular one of the audio signals is multiplied by a factor related to the position to determine a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level ("page 5[0067 & 0074]/(730)").”

Applicants respectfully disagree because there is no teaching in Jouppi that the audio signals are multiplied by any factor. Jouppi para. [0067] states:

“[0067] In one embodiment of the present invention, a user can steer his hearing with the use of the joystick control unit 234... When the shaft 730 is moved to the left, the relative volume of the left side of the user will be correspondingly increased. When the shaft 730 is moved to the right, the relative volume of the right side of the user will be correspondingly increased. Likewise, when the shaft 730 is moved up and down, the relative volume of the front and rear channels will be correspondingly adjusted.” [deletion for clarity]

Applicants respectfully disagree because there is no teaching in Jouppi that, if a desired signal lever is substantially different from a current signal level, the current signal level will be gradually adjusted towards the desired signal level. Jouppi para. [0074] states:

“[0074] When the channels are normalized, the volume of the louder channel(s) will not be increased drastically. Rather, volume of the louder channel(s) is increased moderately, while the volumes of other channels are attenuated. In this way, the user will not be "blasted" by a sudden increase in channel volume from a particular audio channel.”

Re claim 15, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“the sounds are digitally sampled at a sampling rate and the current signal level is incrementally adjusted in uniform increments, one adjustment for each of a predetermined number of samples.”

The Examiner states in the Office Action:

“Re claim 15, The system according to claim 14, wherein the sounds are digitally sampled at a sampling rate and the current signal level is incrementally adjusted in uniform increments, one adjustment for each of a predetermined number of samples ("page 6[0088]").”

It is respectfully submitted that the Examiner's statement is unsupported because Jouppi para [0088] does not teach, suggest, or mention incremental adjustments in uniform increments. Jouppi para. [0088] states:

“[0088] Because the system is designed around a single user, there is no actual need to send four independent voice channels from the user to the remote telepresence unit 60. In order to save bandwidth, in one embodiment, the contents of the loudest voice channel are sent along with a set of vectors giving the relative volume in each channel. The volume vectors only need to be updated approximately every one hundred milliseconds (i.e., a 10 Hz sampling rate) to capture the effects of any positional changes or rotation of the user's head.”

Re claims 15 and 20, these dependent claims depend indirectly or directly from independent claim 1 and are believed to be allowable since they contain all the limitations set

forth in the independent claim from which they depend and claim additional unobvious combinations thereof.

Re claim 21, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“communicating the audio signals from the first location to a second location of a person;
...plural means for reproducing an audio field at the second location from the audio signals, wherein sounds emitted by each means for reproducing are controlled based on the position of the head of the person.”

The Examiner states in the Office Action of June 1, 2007 (hereinafter the “Office Action”):

“Re claim 21, Jouppi disclose a method for audio reproduction comprising:...plural means for reproducing audio field at the second location from the audio signals...

However, Amir et al. disclose of [sic] a system wherein the means for determining a position of the head of the person...for the purpose of adjusting the gain of the transducer based on the head movement...

The combined teaching of Jouppi and Amir et al. as a whole, further teach [sic] of the sounds emitted by each means for reproducing are controlled based on the position of the head of the person ("fig.1 (24,26; page 2[0024] line 8-14; fig.4; page 3[0027] line 16-20")." [deletions for clarity]

Applicants respectfully disagree because Jouppi and Amir, taken as a whole, do not teach or suggest reproducing an audio field at a second location from audio signals from a first location. Applicants teach controlling the reproduction of the speaker sound heard at a person's head. Neither Jouppi nor Amir teaches or suggests controlling speakers. Jouppi has no control over the speakers and Amir controls microphones picking up sound coming from a person's head. This is taught in Amir FIGs. 1 and 4, and Amir paras. [0024], [0026], and [0027], and most specifically in Amir para. [0027], lines 16-20, which states:

“[0027] ... These techniques can be implemented by the processor 12 to derive a person-microphone position signal based on a video stream from a video-based detector 18.” [deletion and underlining for clarity]

Based on the above, it is respectfully submitted that claim 1 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because:

“[T]he prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure.” [Bold for clarity] *In re Vaeck*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

Re claim 22, Applicants respectfully traverse the rejections since the Applicants’ claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“volume of reproduction is controlled based on the position of the head of the person.”

The Examiner states in the Office Action:

“Re claim 22, the method according to claim 21, wherein volume of reproduction is controlled based on the position of the head of the person (“fig.1 (18)”).”

Applicants respectfully disagree because neither Jouppi nor Amir teaches or suggests in Amir FIG. 1, element 18, that the volume of reproduction by speakers is based on the position of the head of the person.

Based on the above, it is respectfully submitted that claim 22 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck*, *supra*.

Re claim 23, Applicants respectfully traverse the rejections since the Applicants’ claimed combination includes the limitation not disclosed in Jouppi or Amir of:

“delay associated with volume of reproduction by each means for reproducing is controlled based on the position of the head of the person.”

The Examiner states in the Office Action:

“Re claim 23, the method according to the claim 21, However, the combined teaching of Jouppi and Amir et al. as a whole, fail to disclose of [sic] the delay associated with volume of reproduction by each means for reproducing is controlled based on the positions of the head of the person. But,

Amir did disclose of the gain being adjusted based on the distance from the person's mouth and orientation of the head ("page 1[0010], thus it is inherent that there must exist a delay associated with volume of reproduction by each means for reproducing is controlled based on the positions of the head of the person."

Applicants respectfully disagree because neither Jouppi nor Amir teaches or suggests in Amir para. [0010] a time delay or the inherency of a time delay.

Based on the above, it is respectfully submitted that claim 23 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because:

"The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient" for anticipation." [emphasis in original] (Continental Can Co. v Monsanto Co., 948 Fed. 2nd 1264, 1268-69, 20 USPQ 2nd 1746, 1749 (Fed. Circ. 1991) quoting *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (C.C.P.A. 1981) (quoting *Hansgirk v. Kemmer*, 102 F.2d 212, 214, 40 USPQ 665, 667 (C.C.P.A. 1939))

Re claim 24, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

"the audio field is controlled based on the position of the person's head in three dimensions."

The Examiner states in the Office Action:

"Re claim 24, the method according to claim 21, wherein the audio field is controlled based on the position of the person's head in three dimensions ("page 3[0029] line 8-15; fig.2-4/video detectors for multidimensional positions")."

Applicants respectfully disagree because neither Jouppi nor Amir teaches or suggests in Amir [0029] line 8-15; "fig.2-4/video detectors for multidimensional positions" that the volume of reproduction by speakers is based on the position of the head of the person.

Based on the above, it is respectfully submitted that claim 24 is allowable under 35 U.S.C. §103(a) as being patentable over Jouppi and Amir because of the holding in *In re Vaeck, supra*.

Claims 25-28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Schulz (U.S. Patent No. 7,092,001 B2, hereinafter "Schulz") and Amir et al. (U.S. Appl. Pub. No. 2002/0090094 A1, hereinafter "Amir").

Re claim 25, Applicants respectfully traverse the rejections since the Applicants' claimed combination includes the limitation not disclosed in Jouppi or Amir of:

"...a plurality of speakers for reproducing an audio field at the display booth, wherein the audio field is controlled based on the position of the head of the person." [deletions for clarity]

The Examiner states in the Office Action

"Re claim 25, Schulz disclose of a telepresence system comprising: a display booth having a plurality of cameras for obtaining images of a person within the display booth ("fig.1 (104)/with fig.2 (220); col.12 line 33-40/room as the booth"); a computer system for determining a position of the head of the person in at least two dimensions from the images of the person("fig.9; col.8 line 23-30"). But, Schulz fail to disclose of [sic] the plurality of speakers for reproducing an audio field at the display booth, wherein the audio field is controlled based on the position of the head of the person.

However, Amir disclose of a system wherein the plurality of speakers for reproducing an audio field at the display booth, wherein the audio field is controlled based on the position of the head of the person ("fig.1; fig.1 (18); fig.2") for the purpose of adjusting the gain of the transducer based on the head movement. Thus, taking the combined teaching of Schulz and Amir et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Schulz by incorporating the plurality of speakers for reproducing an audio field at the display booth, wherein the audio field is controlled based on the position of the head of the person for the purpose of adjusting the gain of the transducer based on the head movement."

Applicants respectfully disagree because Jouppi and Amir, taken as a whole, do not teach or suggest reproducing an audio field at a second location from audio signals from a first location. Applicants teach controlling the reproduction of the speaker sound heard at a person's head. Neither Jouppi nor Amir teaches or suggests controlling speakers. Jouppi has no control over the speakers and Amir controls microphones picking up sound coming from a person's head. This is taught in Amir FIGs. 1 and 4, and Amir FIG. 1 and para.[0018], and most specifically in Amir para. [0027], lines 16-20, which states:

“[0027] ... These techniques can be implemented by the processor 12 to derive a person-microphone position signal based on a video stream from a video-based detector 18.” [deletion and underlining for clarity]

Based on the above, it is respectfully submitted that claim 1 is allowable under 35 U.S.C. §103(a) as being patentable over Schulz and Amir because:

“[T]he prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure.” [Bold for clarity] *In re Vaeck*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

Re claims 26-28, these dependent claims depend from independent claim 25 and are believed to be allowable since they contain all the limitations set forth in the independent claim from which they depend and claim additional unobvious combinations thereof.

Other

The Examiner stated that the prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

“O'Toole ("7,177,413 B2") disclose of the Head position and monitor and processing based on the movement and Plunket disclose of audio equalization based on sensor ("5,386,478") and Wilcock et al. disclose of the head tracking and adjusting output for stabilization ("US 2003/0093668") and Hennion et al. ("2003/0144768) disclose of the telepresence and reconstruction of surface.”

The other references cited by the Examiner showing the prior art have been considered and are not believed to disclose, teach, or suggest, either singularly or in combination, Applicants' invention as claimed.

Conclusion

In view of the above, it is submitted that the claims are in condition for allowance and reconsideration of the rejections is respectfully requested. Allowance of claims 1-28 at an early date is solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including any extension of time fees, to Deposit Account No. 08-2025 and please credit any excess fees to such deposit account.


Respectfully submitted,



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